

Do Women Shy Away from competition?

Muriel Niederle

Stanford University

Lise Vesterlund

University of Pittsburgh

Gender differences in economic success

- Glass ceiling effect
- Women have a higher attrition rate in e.g. academia.
- Gender wage gap...

Theories so far:

- Discrimination
- Difference in preferences (over outcomes), abilities

Women and men may differ in their propensity to select into competitive tasks.

Laboratory experiments:

- Control over self selection issues
- Measure performance
- No issue of discrimination, or believed discrimination

Want to observe selection into competitive environments.

Need a task with no gender difference in either a competitive and non-competitive environment

Add up 5 two-digit numbers for 5 minutes.

21	35	28	79	83	
----	----	----	----	----	--

2 women and 2 men per group from U. of Pittsburgh.

Overall, 40 Men and 40 Women

4 Tasks, no feedback in between.

- **Task 1- Piece Rate:**

50 cents per correctly solved problem.

Participants receive no feedback.

- **Task 2 – Tournament:**

The participant who solves the most problems correctly in the group receives \$ 2 per correct problem.

Other participants receive no payment.

Participants receive no feedback.

Choice between tournament and piece rate

Goal: (i) If choose tournament: compete against players who are in a tournament

(ii) Choice:

- should depend beliefs regarding the other players' performance
- not on other players' choices.

Task3: Choice

Choose Piece Rate: 50 cents for each correctly solved problem

Choose Tournament: Performance is compared to task-2 tournament performance of the other participants.

If the participant has the highest performance she or he receive \$2 for each correct answer, otherwise no payment.

Differences in choices between tournament and Piece Rate:

- Preferences for competitive tasks
- Beliefs about ability to perform in tournaments
- Aversion to uncertain payoffs

Additional treatment to measure the effect of a tournament payment scheme **only**

We will use this treatment as a measure for the effect of uncertain payments.

Submitting the Piece Rate to a Tournament

Task 4: Submitting the Piece Rate Result

Choose (additional) payment for Task-1
Piece rate performance

Choose Piece Rate: 50 cents for each
correctly solved problem

Choose Tournament: If the participant has
the highest task 1 Piece Rate performance
she or he receive \$2 for each correct
answer, otherwise no payment.

Soliciting Beliefs

Decisions of participants may be driven by beliefs rather than actual relative performance

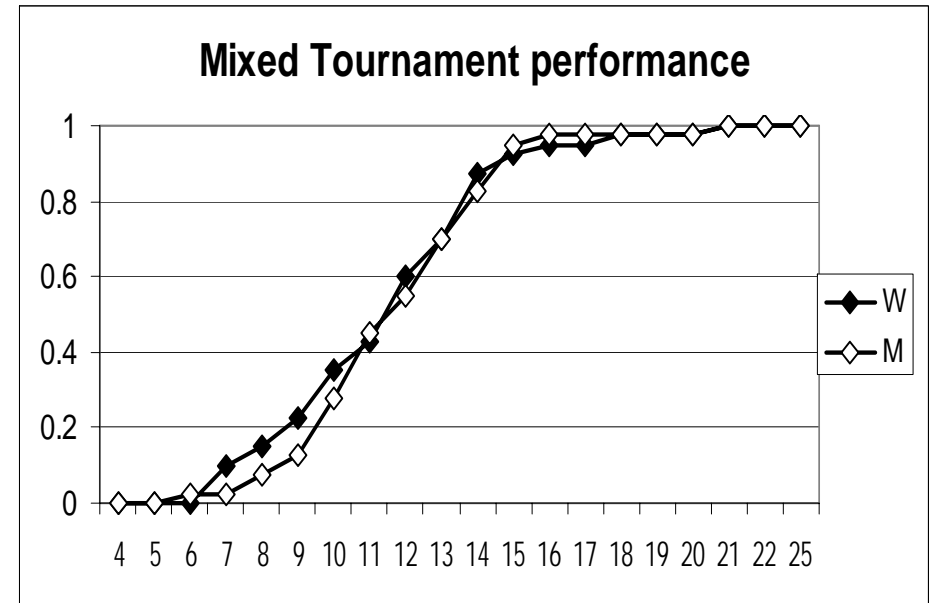
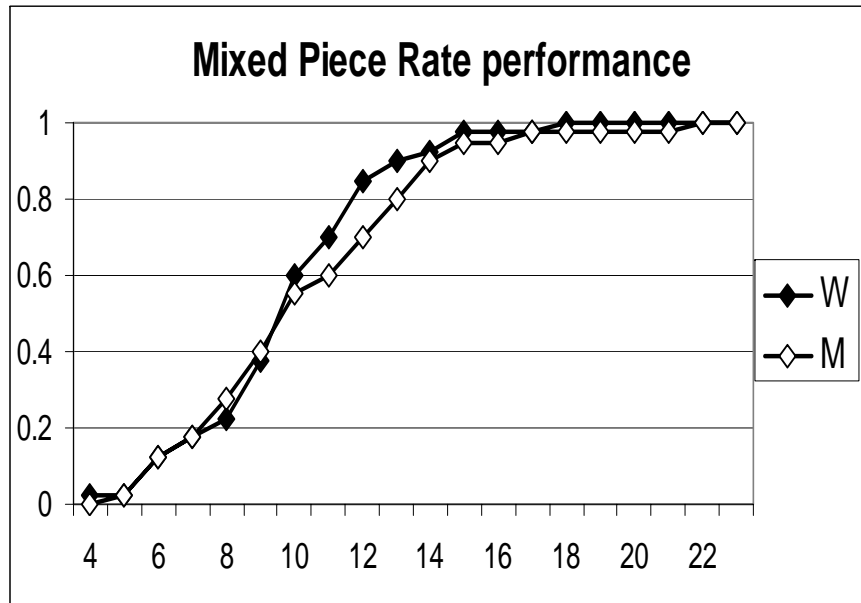
We ask participants to guess their rank for

Task 1 Piece Rate

Task 2 tournament

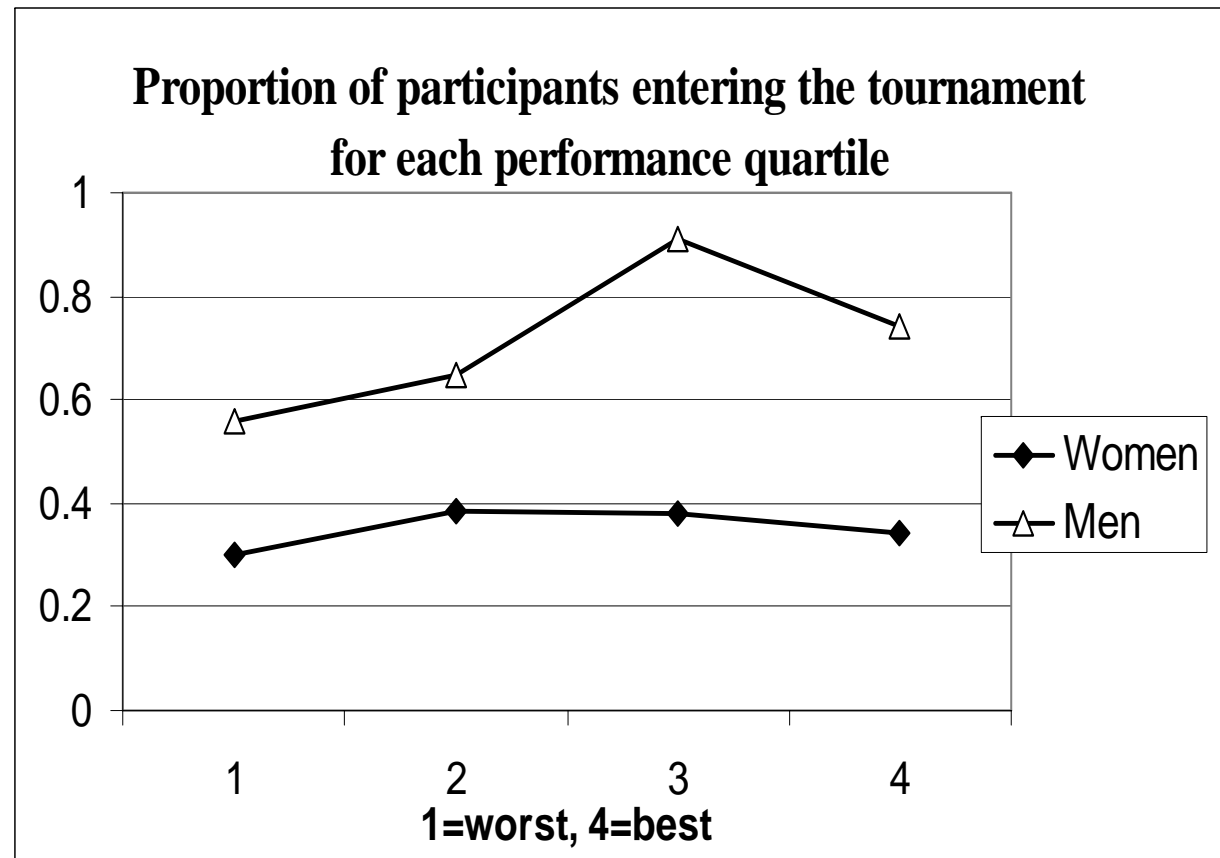
Receive \$1 if guess is correct.

No gender Differences in Performance



	8	9	10	11	12	13	14	15	16	18	21
Women	0.1	0.4	1.8	5.5	13.4	26.6	47.8	71.9	84.6	90.3	96.3
Men	0.1	0.4	1.8	5.6	13.4	26.6	47.7	71.9	84.6	--	96.3

Do Women Shy Away from competition?



Who enters? 35% of women and 73% of men

Significant gender difference on choosing the tournament,
conditioning on past performance

Are Choices predicted by future performance?

Women	Choice	Choice - Tournt		Men	Choice	Choice - Tournt
choose Piece	11.62 (0.62)	-0.15 (0.44)		choose Piece	11.91 (0.91)	0.82 (0.44)
choose Tourn.	11.79 (0.64)	-0.14 (0.50)		choose Tourn.	13.48 (0.83)	0.97 (0.55)

Future performance does not predict entry well.

Men increase their performance more than women (but not enough to justify the differences in entry we saw before)

Is the Entry Decision determined by Beliefs?

(I): Belief Formation

Better performance predicts better beliefs

Actual Beliefs:

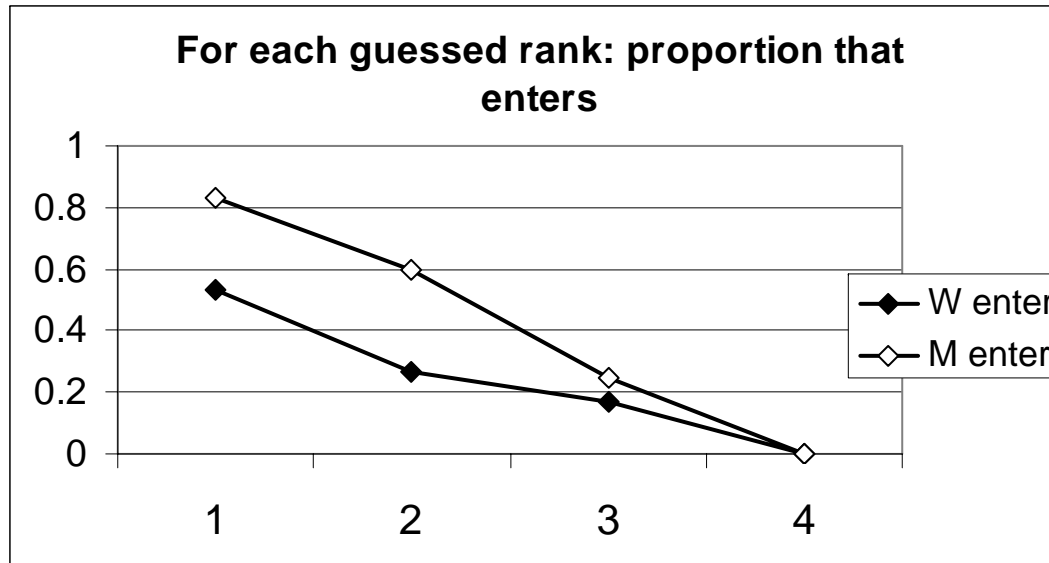
	Men	Men-wrong	Women	Women-wrong
Best	30	22	17	9
2	5	3	15	10
3	4	2	6	5
4	1	1	2	1
Total	40	28	40	25

Women and Men differ significantly in their beliefs

Is the Entry Decision determined by Beliefs?

(II): Do Beliefs predict Entry

For both, women and men, better beliefs predict more entry into the tournament



Conditional on beliefs, women enter the tournament less than men

Do Risk Preferences Account for the Gender difference?

Are differences driven by:

- Aversion to Compete
- Beliefs about lower ability to perform in tournaments?
- Risk attitudes

Do Women and Men react in a similar way to uncertain, competitive payment schemes even if there is no competitive aspect to the performance?

Submitting the Piece Rate to a Tournament

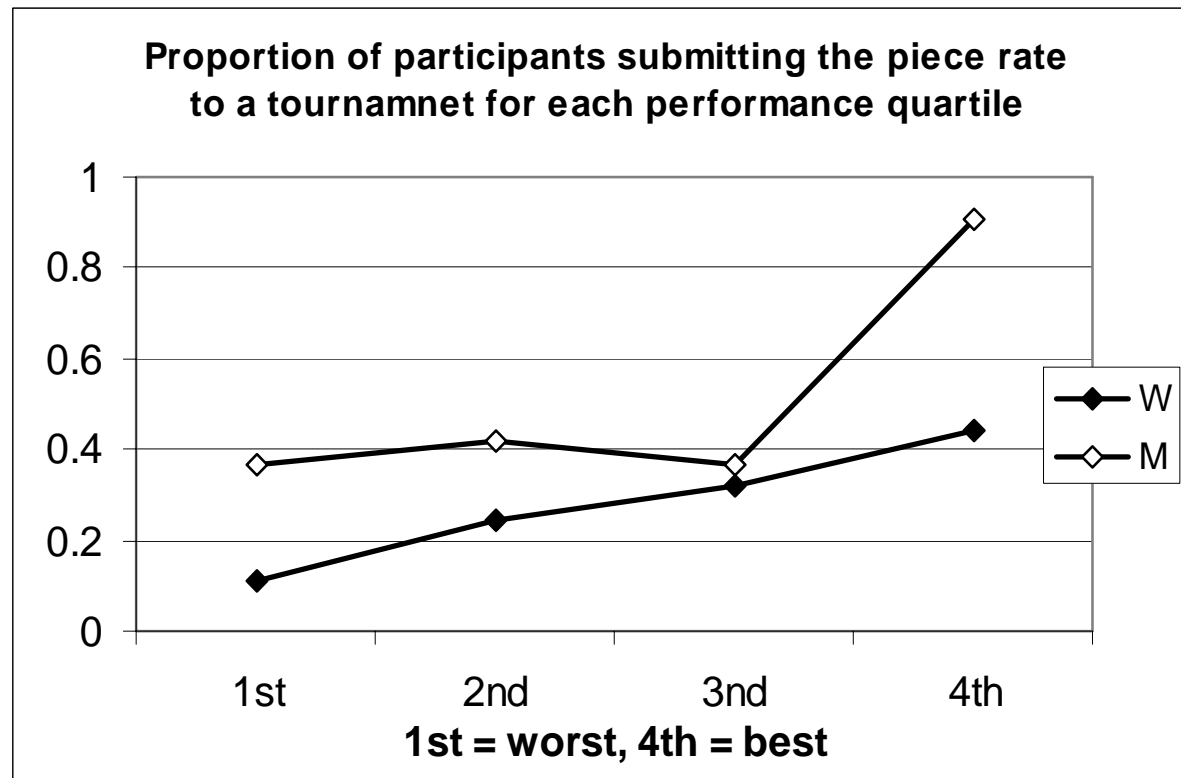
Task 4: Submitting the Piece Rate Result

Choose (additional) payment for Task-1
Piece rate performance

Choose Piece Rate: 50 cents for each
correctly solved problem

Choose Tournament: If the participant has
the highest task 1 Piece Rate performance
she or he receive \$2 for each correct
answer, otherwise no payment.

Submitting the Piece R. to a tournament scheme



Who submits? 25% of women and 55% of men

Significant gender difference on submitting the piece rate to the tournament, conditioning on past performance

Is the Decision to submit driven by beliefs?

(I): Belief Formation

Better performance predicts better beliefs

Actual Beliefs:

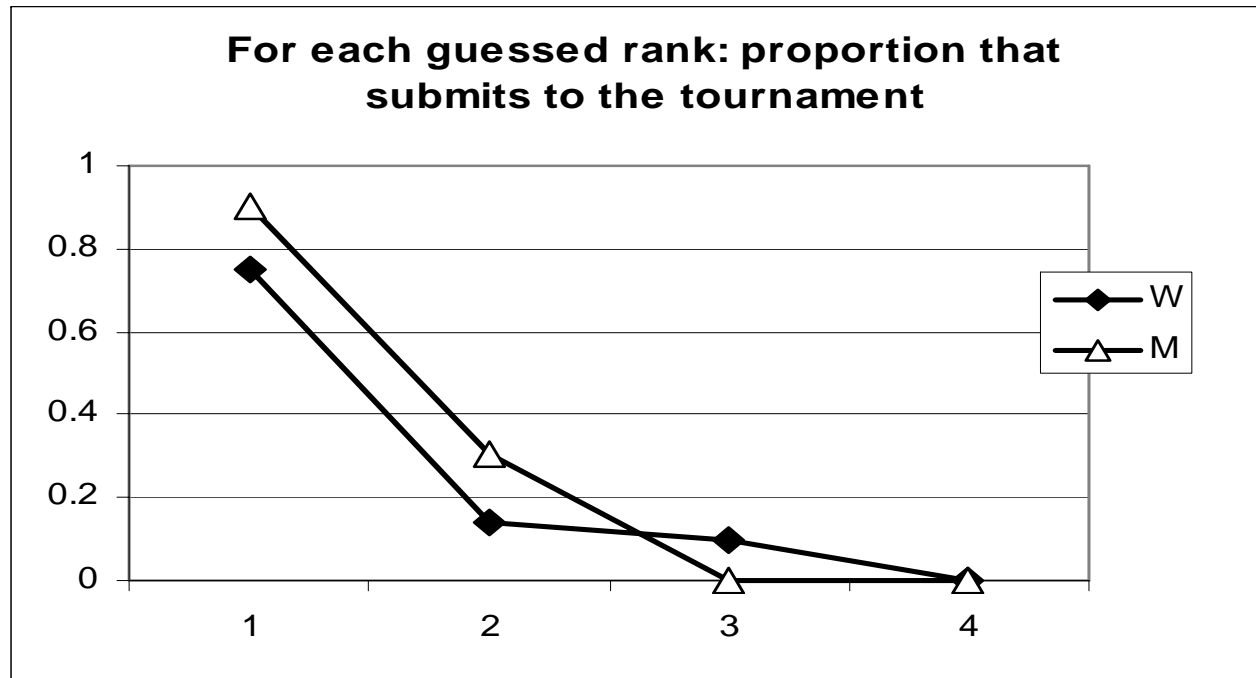
	Men	Men-wrong	Women	Women-wrong
1: Best	20	12	8	4
2	13	8	21	15
3	5	4	10	7
4: Worst	2	1	1	--
Total	40	25	40	26

Women and Men differ significantly in their beliefs

Is the Decision determined by Beliefs?

(II): Do Beliefs predict Submission to a T?

For both, women and men, better beliefs predict more submission to a tournament



Conditional on beliefs, the difference between women and men is not significant ($p=0.22$)

Submitting the piece rate as a control for Risk Aversion 1

Use the decision to submit the piece rate to a tournament as a control for risk aversion, reaction to uncertain relative ranking...

A probit regression on the decision to enter the tournament, controlling for the decision of submitting the piece rate to a competitive scheme, and performance, still shows a significant gender dummy.

Submitting the piece rate as a control for Risk Aversion 1

Use the control for entry decision as a function of beliefs:

A probit regression on the decision to enter the tournament, controlling for the decision of submitting the piece rate to a competitive scheme, and believed ranking, still shows a significant gender dummy.

Submitting the piece rate as a control for Risk Aversion...

Risk Aversion seems not to be the sole explanation for gender differences in decisions whether to enter the tournament or not.

There is an additional gender difference when it comes to deciding between performing in a competitive environment compared to decisions made about a non-competitive performance.

Belief Formation

We can also use the belief formation in the piece rate as a control for “overconfidence”, when looking at the belief formation in the tournament.

We find a significant gender gap, controlling for the formation of beliefs in the piece rate.

Do women Shy Away from Competition?

Yes

For women, entering a tournament, seems not driven much by actual ability, and only somewhat for men.

Part of the effect is that women have lower beliefs in their ability

While risk attitudes may have an effect, they cannot explain the whole difference in behavior.